total of 78 degrees±6 degrees about the head's center of gravity; and

(2) Shall rotate to the extent specified in Table B at each indicated point in time, measured from time of impact, with the chordal displacement measured at the head's center of gravity.

(i) Chordal displacement at time ''T'' is defined as the straight line distance between the position relative to the pendulum arm of the head's center of gravity at time ''zero;'' and the position relative to the pendulum arm of the head's center of gravity at time T as illustrated by Figure 3 in §572.11.

(ii) The peak resultant acceleration recorded at the location of the accelerometers mounted in the headform according to §572.77(b) shall not exceed 30g.

TABLE B

Rotation (degrees)	Time (ms)±(2+.08T)	Chordal displacement (inches)±0.8
0	0	0
30	26	2.7
60	44	4.3
Maximum	68	5.8
60	101	4.4
30	121	2.4
0	140	0

(3) The pendulum shall not reverse direction until the head's center of gravity returns to the original ''zero'' time position relative to the pendulum arm.

(c) *Neck test procedure.* The test procedure for the neck is as follows:

(1) Mount the head and neck assembly on a rigid pendulum as specified in §572.21, Figure 15, so that the head's midsagittal plane is vertical and coincides with the plane of motion of the pendulum's longitudinal center line. Attach the neck directly to the pendulum as shown in §572.21, Figure 15.

(2) Release the pendulum and allow it to fall freely from a height such that the velocity at impact is 17.00±1.0 fps, measured at the center of the accelerometer specified in §572.21, Figure 15.

(3) Decelerate the pendulum to a stop with an acceleration-time pulse described as follows:

(i) Establish 5g and 20g levels on the a-t curve.

(ii) Establish t_1 at the point where the rising a-t curve first crosses the 5g level; t_2 at the point where the rising a-t curve first crosses the 20g level; t_3 at the point where the decaying a-t curve last crosses the 20g level; and t_4 at the point where the decaying a-t curve first crosses the 5g level.

(iii) $t_2 - t_1$ shall not be more than 3 milliseconds.

(iv) $t_3 - t_2$ shall not be more than 22 milliseconds, and not less than 19 milliseconds.

(v) $t_4 - t_3$ shall not be more than 6 milliseconds.

(vi) The average deceleration between t_2 and t_3 shall not be more than 26g, or less than 22g.

(4) Allow the neck to flex without the head or neck contacting any object other than the pendulum arm.

(5) Allow at least 60 minutes between successive tests.

[56 FR 57836, Nov. 14, 1991, as amended at 57 FR 4086, Feb. 3, 1992]

§572.74 Thorax assembly and test procedure.

(a) *Thorax assembly.* The thorax consists of the part of the torso assembly designated as SA 106C 030 on drawing SA 106C 001, sheet 2, Revision A, and conforms to each applicable drawing on SA 106C 001 sheet 10, Revision C (including Drawing number 6C–1610–1 thru –4, Revision A, titled ''Screw Button Head Socket'', dated September 30, 1996, and Drawing number 6C–1021, Revision B, titled ''Ballast, 6 Yr. Thoraxc (for 7267A)'', dated September 24, 1996), and sheet 11, Revision D (including Drawing number SA 6C–909, Revision A, titled ''Cover-chest Accelerometer'', dated September 21, 1996, and Drawing number 6C–1000–1, Revision C, titled ''Sternum Thoracic Weld Ass'y.'', dated September 24, 1996).

(b) *Thorax assembly requirements.* When the thorax is impacted by a test probe conforming to §572.77(a) to 20±0.3 fps according to the test procedure in paragraph (c) of this section, the peak resultant accelerations at the accelerometers mounted in the chest cavity according to §572.77(c) shall not be less than 43g and not more than 53g.

(1) The recorded acceleration-time curve for this test shall be unimodal at or above the 30g level, and shall lie at or above that level for an interval not less than 4 milliseconds and not more than 6 milliseconds.

(2) The lateral accelerations shall not exceed 5g.

(c) *Thorax test procedure.* The test procedure for the thorax is as follows:

(1) Seat and orient the dummy on a seating surface without back support as specified in §572.78(c), and adjust the joints of the limbs at any setting (between 1g and 2g) which just supports the limbs' weight when the limbs are extended horizontally and forward, parallel to the midsagittal plane.

(2) Establish the impact point at the chest midsagittal plane so that the impact point is 2.25 inches below the longitudinal center of the clavicle retainer screw, and adjust the dummy so that the plane that bisects the No. 3 rib into upper and lower halves is horizontal ±1 degree.

(3) Place the longitudinal center line of the test probe so that it coincides with the designated impact point, and align the test probe so that at impact, the probe's longitudinal center line coincides (within 2 degrees) with the line formed at the intersection of the horizontal and midsagittal planes and passing through the designated impact point.

(4) Impact the thorax with the test probe so that at the moment of contact the probe's longitudinal center line falls within 2 degrees of a horizontal line in the dummy's midsagittal plane.

(5) Guide the test probe during impact so that there is no significant lateral, vertical, or rotational movement.

(6) Allow at least 30 minutes between successive tests.

[56 FR 57836, Nov. 14, 1991, as amended at 60 FR 2897, Jan. 12, 1995; 62 FR 44227, Aug. 20, 1997]

§572.75 Lumbar spine, abdomen, and pelvis assembly and test procedure.

(a) *Lumbar spine, abdomen, and pelvis assembly.* The lumbar spine, abdomen, and pelvis consist of the part of the torso assembly designated as SA 106C 50 and 60 on drawing SA 106C 001, sheet 2, and conform to each applicable drawing listed on SA 106C 001, sheets 12 and 13.

(b) *Lumbar spine, abdomen, and pelvis assembly response requirements.* When the lumbar spine is subjected to a force continuously applied according to the test procedure set out in paragraph (c) of this section, the lumbar spine assembly shall—

(1) Flex by an amount that permits the rigid thoracic spine to rotate from the torso's initial position, as defined in (c)(3), by 40 degrees at a force level of not less that 46 pounds and not more than 52 pounds, and

(2) Straighten upon removal of the force to within 5 degrees of its initial position when the force is removed.

(c) *Lumbar spine, abdomen, and pelvis test procedure.* The test procedure for the lumbar spine, abdomen, and pelvis is as follows:

(1) Remove the dummy's head-neck assembly, arms, and lower legs, clean and dry all component surfaces, and seat the dummy upright on a seat as specified in Figure 42.

(2) Adjust the dummy by—

(i) Tightening the femur ballflange screws at each hip socket joint to 50 inch-pounds torque;

(ii) Attaching the pelvis to the seating surface by a bolt D/605 as shown in Figure 42.

(iii) Attaching the upper legs at the knee joints by the attachments shown in drawing Figure 42.

(iv) Tightening the mountings so that the pelvis-lumbar joining surface is horizontal; and

(v) Removing the head and neck, and installing a cylindrical aluminum adapter (neck adapter) of 2.0 inches diameter and 2.60 inches length as shown in Figure 42.

(3) The initial position of the dummy's torso is defined by the plane formed by the rear surfaces of the shoulders and buttocks which is three to seven degrees forward of the transverse vertical plane.

(4) Flex the thorax forward 50 degrees and then rearward as necessary to return the dummy to its initial torso position, unsupported by external means.

(5) Apply a forward pull force in the midsagittal plane at the top of the neck adapter so that when the lumbar spine flexion is 40 degrees, the applied force is perpendicular to the thoracic spine box.

(i) Apply the force at any torso deflection rate between 0.5 and 1.5 degrees per second, up to 40 degrees of flexion.